Zootaxa 1032: 29–60 (2005)
www.mapress.com/zootaxa/

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

1032

A supplement to the checklist of the New World chafers (Coleoptera: Scarabaeidae: Melolonthinae) with notes on their tribal classification

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Abstract

The checklist of the New World Melolonthinae published in 2003 by Evans is updated to 30 June 2005. Corrections and omissions to the previous checklist are also noted and necessary taxonomic changes are made. *Melolontha elongata* Fabricius, 1792 is designated as the type species of *Philochloenia* Dejean, 1833, **syn. nov.** thereby placing this genus as a junior synonym of *Dichelonyx* Harris, 1827. *Phyllophaga guatemalica* (Moser, 1918), **syn. nov.** and *Phyllophaga longiclava* (Moser, 1918), **syn. nov.** are placed in synonymy with *Phyllophaga ravida* (Blanchard, 1851). The Australian genus *Deuterocaulobius* Dalla Torre, 1912, **stat. nov.** is brought out of synonymy and considered the valid name for "*Phyllochlaenia* Blanchard, 1846." *Warwickia,* **nom. nov.** is proposed as a replacement name for the junior homonym *Benedictia* Sanderson, 1939 (non Dybowski, 1875) and consequently, *Warwickia pilosa* (Sanderson, 1939), **comb. nov.** is a new combination for the single species in this genus. A brief overview of the tribal classification of Melolonthinae is presented.

Key words: Coleoptera, Scarabaeidae, Melolonthinae, chafers, New World

Tribal Classification of the New World Melolonthinae

The tribal classification of the New World Melolonthinae has never been considered in its entirety using modern phylogenetic techniques. In fact, the only publications that have ever considered the fauna as a whole are in the form of catalogues and checklists (see

Accepted by V.V. Grebennikov: 3 Aug. 2005; published: 8 Aug. 2005

Harold 1869; Dalla Torre 1912, 1913; Blackwelder and Arnett 1974; Evans 2003). There is no single modern reference that deals with worldwide Melolonthinae classification at the tribal level.

The first tribal scheme for the North American fauna (LeConte 1856, 1861) was based on the classifications of Erichson (1847) and Lacordaire (1856). The classifications of both Erichson and Lacordaire were developed largely to accommodate taxa found outside the Nearctic region, especially the Palearctic. The beginnings of the modern tribal concepts for the South American fauna are traced back to the works of Burmeister (1855) and Lacordaire (1856). All of these classifications were modified and presented in a catalogue by Dalla Torre (1912, 1913). In the New World, Dalla Torre's tribal classification was accepted and refined, in catalogue form, by Leng (1920), Leng and Mutchler (1927, 1933), Blackwelder (1939, 1944), and Blackwelder and Blackwelder (1948). The most recent tribal classification for the Nearctic and Neotropical regions (Evans 2003) was in the form of a checklist and was generated as a synthesis of Blackwelder (1944), Britton (1978), and Evans (2002).

The lack of clear and consistent tribal definitions by Dalla Torre has resulted in phylogenetic chaos, especially in zoogeographical regions outside of the Palearctic. Since the appearance of his catalogue the placement of New World genera in tribes has mostly been haphazard or *ad hoc* to accommodate new taxa. As a result, the tribal classification of the New World melolonthines is, or at least should be, in a state of flux if it is to accurately reflect phylogenetic relationships. Tribal definitions that have appeared since then seldom take into account taxa that occur in regions outside of the author's study area. This is somewhat understandable since the purpose of these publications is not to present species within the context of a large, poorly known world fauna, but simply to facilitate their identification.

The following synopses are not intended to present a thorough history of the tribal classification of the New World melolonthines. Instead, we simply want to point out some of the more pertinent articles that have appeared in the literature, mostly in the last century, that impact the tribal classification of the Nearctic and Neotropical faunas. It is our hope that this information, along with the updated checklist, soon to appear on the web site (http://www.museum.unl.edu/research/entomology/nwmelos.htm), will help researchers to identify both the challenges and opportunities for future melolonthine research. For additional papers of interest, see Reitter (1902), Ritcher (1969a,b), Iablokoff-Khnzorian (1977), Kohlmann and Morón (2003), and their cited references.

Chasmatopterini, Oncerini, and Podolasiini. The genera included in these tribes have long been associated with one another. LeConte (1861) placed both *Podolasia* Harold (as *Lasiopus* LeConte) and *Oncerus* LeConte in his tribe Oncerini, noting their similarity to the European *Chasmatopterus* Dejean. Dalla Torre (1912) placed *Chasmatopterus* and *Chnaunanthus* Burmeister in the tribe Chasmatopterini, following the classification of Lacordaire (1856). To this tribe he added the New World genera *Oncerus* and *Podolasia*.

Leng (1920), Leng and Mutchler (1927, 1933) and, for the most part, Blackwelder (1939, 1944) followed this classification. Saylor (1937) considered the Chasmatopterini as a subfamily separate from the Melolonthinae. He removed *Podolasia* from the subfamily and suggested that *Oncerus* should be placed near the subfamily Aclopinae. The following year, Saylor (1938) resurrected the subfamily Oncerinae for *Oncerus* and his new genus *Nefoncerus*. *Podolasia* was removed from the Oncerinae and placed *incertae sedis* by Howden (1954). Arnett (1971) combined Saylor's Oncerinae and Chasmatopterinae within the Chasmatopterini of the Melolonthinae. Howden (1997) later placed *Podolasia* and his new genus, *Podostena*, in the new tribe Podolasiini. Evans (2002, 2003) recognized the Chasmatopterini, Oncerini, and Podolasiini as tribes of the Melolonthinae.

In their revision of the *Chasmatopterus*, Baraud and Branco (1991) stated that this genus was the sole representative of the Chasmatopterinae, a taxon considered as a tribe of the Melolonthinae by most workers in the New World. However, Branco (2005) observed that most recent North American authors (see Howden 1997; Morón *et al*. 1997; Evans 2002, 2003; Smith 2003) continue to include *Chnaunanthus* and *Chaunocolus* in the Chasmatopterini. He briefly compared the morphology of *Chasmatopterus* with *Chnaunanthus* and *Chaunocolus* and rightly concludes that these New World genera "belong elsewhere, probably in a subfamily (or tribe) of their own." In this paper we consider both of these genera to be *incertae sedis*. As a result, the tribe Chasmatopterini must be stricken from the Nearctic faunal lists.

Sericini. *Athlia* Erichson was transferred here from the Sericoidini by Martínez (1967). Recently Ahrens (2004) reported that the monotypic *Rhynchosymmela* Frey is a junior synonym of the Old World genus *Hemiserica* Brenske. The sole species in the genus, *R. pallida* Frey, is a junior synonym of *Hemiserica nasuta* Brenske, a species indigenous to India. Frey's holotype was mislabeled. Numerous species of New World sericines await description, mostly in the genera *Athlia*, *Astaena* Erichson, and *Serica* MacLeay.

Sericoidini and Liparetrini. LeConte (1861) placed his genus *Hypotrichia* in the Sericoidini, Later, LeConte and Horn (1883) added another North American genus to the tribe, *Plectrodes* Horn. These placements resulted in their subsequent listing under the Liparetrini by Dalla Torre (1912). Leng (1920) retained *Hypotrichia* in the Liparetrini, but placed *Plectrodes* in the Melolonthini. Blackwelder (1944) followed the classification of Dalla Torre. Saylor (1946) resurrected Sericoidini to include the Neotropical genera *Apterodemidea* Gutierrez (as *Apterodema* Fairmaire), *Athlia*, and *Sericoides* Guérin-Méneville, but Janssens (1949), Gutiérrez (1952), and Machatschke (1959) continued to use Liparetrini, either as a tribe of subfamily Sericinae or Melolonthinae. Britton (1957), considering only the Australian fauna, broke up the liparetrines of Dalla Torre, essentially resurrecting the classification of Burmeister (1855). Britton recognized that two of these tribes, the Xylonychini and Heteronycini, had affinities with South American taxa. The genus *Athlia* was transferred to the Sericini by Martínez (1967). Howden (1968) transferred *Hypotrichia* to the Melolonthini. Britton (2000) removed the five Neotropical spe-

cies of *Heteronyx* from the genus, but did not place them in a new or existing genus. For this reason, and without the opportunity to examine the types of Moser, Evans (2003) retained their placement in the New World Liparetrini. Evans (2003) also transferred *Modialis* Fairmaire and Germain, formerly of the Liparetrini and provisionally considered in the Xylonychini by Britton (E. B. Britton, personal communication) to the Melolonthini. Students examining the tribal affinities of the South American liparetrines and sericoidines should also refer to the papers of Britton (1978, 1988, 1990 etc.) dealing with the Australian fauna.

Melolonthini. Burmeister (1855), Lacordaire (1856), and LeConte (1856, 1861) divided this tribe into subtribes. Dalla Torre (1913) included these and other subtribes under Melolonthini. Subtribes are seldom used for the New World Melolonthini, but they are consistently applied in the classifications of the Afrotropical and Palearctic melolonthine faunas. In North America, Casey (1914) noted the close relationship of *Plectrodes* with other genera in the Melolonthini and was transferred there from the Sericoidini by Leng (1920). Howden (1968) transferred *Hypotrichia*, formerly in the Sericoidini, and his new genus *Hypothyce* to the Melolonthini. Evans (2002) transferred *Fossocarus* and *Gronocarus* to this tribe from the Pachydemini, followed by *Howdenocarus* and *Modialis* (Evans 2003).

Diplotaxini. European workers have long recognized this as a distinct tribe or subtribe. But most North American authors have lumped it with the Melolonthini. Hatch (1971) and Evans (2002, 2003) recognized this taxon in their tribal classifications, while Morón *et al*. (1997) treated it as a subtribe of the Melolonthini. Recently, Evans (2003) removed *Liogenys* Guérin-Méneville from the Macrodactylini, along with *Pachrodema* Blanchard of the Melolonthini, and transferred them both to the Diplotaxini. Bezdek (2004) recently catalogued the Diplotaxini of the Old World.

Pachydemini. Hardy (1978) commented on the fact that the tribe Pachydemini has long been a dumping ground for melolonthine genera that were difficult to place elsewhere. He attributed this situation to the lack of a formal definition of the tribal concept by Dalla Torre (1913). Subsequent definitions of the tribe, based on the Palearctic and Afrotropical genera (see Janssens 1949; Baraud 1985; Lacroix 1993, 2001; Evans 2002), exclude some New World "pachydemines", while including other taxa whose relationships with the Old World pachydemines are dubious at best. Hardy (1978) transferred *Warwickia* nom. nov. (as *Benedictia*) here from the Pleocominae (now a family of scarabaeoids) and noted that its affinities were with the South American "pachydemine" fauna. After examining several genera of Nearctic "pachydemines" (*Warwickia nom. nov.*, *Fossocarus* Howden, *Gronocarus* Schaeffer, *Howdenocarus* Hardy, and *Phobetus* LeConte), as well as the perpetually problematic *Acoma* Casey, Evans (1988) suggested that these genera do not belong in the Pachydemini and their supposed tribal affinities with this mostly Palaearctic tribe is doubtful. Evans (2002) placed *Fossocarus*, and *Gronocarus* in the Melolonthini. Later, *Howdenocarus* was also transferred to the Melolonthini (Evans 2003). Studies

are currently underway by Federico Ocampo (personal communication) to determine the phylogenetic relationships and taxonomic placement of the Neotropical "pachydemines" (sensu Martínez 1975, 1982). There is little doubt that the current assemblage considered to be in the tribe Pachydemini is paraphyletic with respect to other Melolonthinae tribes. Although some South American taxa are remarkably similar in appearance to some genera of Subsaharan melolonthines, more work is required to determine if these similarities are synapomorphic or convergent.

Macrodactylini. The New World Macrodactylini is also long overdue for revision and was recently reviewed in an unpublished dissertation (Katovich 2002). The works of Ritcher (1966), Hatch (1971), and Morón *et al*. (1997) suggest that the tribe might eventually be broken up into different tribes reflecting the classifications originally proposed by Burmeister (1855) and Lacordaire (1856).

Hopliini. Saylor (1935) placed his new genus *Leptohoplia* in this tribe, but Howden and Hardy (1971) later transferred it to Anomalini of the Rutelinae. Since then the New World Hopliini, with the sole genus *Hoplia* Illiger, have remained stable.

***Acoma* Casey.** This genus was placed in the Pleocominae in the catalogues by Arrow (1912) and Leng (1920). Blackwelder (1944) listed it under the tribe Chasmatopterini of the Melolonthinae. Howden (1958) stated that the placement of the genus would continue to remain in doubt until female specimens were discovered and studied (Mont Cazier and a group of students did discover a female *Acoma* specimen but it has yet to be described). Evans (2002, 2003) placed it in *incertae sedis* under the Melolonthinae.

Introduction to the supplement

Taxonomic research on the New World Melolonthinae continues to be fertile ground. Numerous new taxa in several different publications along with needed corrections, additions, and taxonomic changes prompted us to update the checklist of New World Melolonthinae published by Evans (2003). A new version of the entire checklist with updates and corrections will be available electronically at: www.museum.unl.edu/research/entomology/nwmelos.htm and it is our intention to continuously update the electronic version as more changes to the taxonomy and classification of New World Melolonthinae are published.

Additions, corrections, and modifications are made to the original checklist under a series of headings: new species, new synonymy, new homonymy, new combinations, new status, new country records, new literature, omissions, and errors. There are also short sections on "taxa removed from the New World Melolonthinae" and "New World melolonthine genera and species placed in *incertae sedis*." The entries are simplified in comparison with the original checklist for brevity. References are provided for all of the new papers dealing with New World Melolonthinae taxonomy as well as other papers cited in text. Full citations for the authors and dates listed below as part of taxon names (recog-

nizable by the comma between the author and date) are not necessarily listed in the reference section. These citations can be found in Evans (2003).

NEW SPECIES

The following new species were described between 1 January 2003 and 30 June 2005 and must be added to the checklist.

Tribe MELOLONTHINI
Genus *GRONOCARUS* Schaeffer

Gronocarus inornatus Skelley, 2005: 141
Distribution: USA

Genus *HYPOTHYCE* Howden

Hypothyce burnei Skelley, 2005: 153
Distribution: USA

Genus *PHYLLOPHAGA* Harris

Phyllophaga aceitillar Woodruff, 2005: 31
Distribution: Dominican Republic

Phyllophaga alcoa Woodruff, 2005: 33
Distribution: Dominican Republic

Phyllophaga androw Woodruff, 2005: 39
Distribution: Dominican Republic

Phyllophaga approxima Woodruff and Sanderson, 2005: 42
Distribution: Dominican Republic

Phyllophaga (*Phyllophaga*) *atratoides* Morón, 2003a: 247
Distribution: México

Phyllophaga (*Listrochelus*) *babicora* Morón, 2004: 86
Distribution: México

Phyllophaga baoruco Woodruff, 2005: 45
Distribution: Dominican Republic

Phyllophaga (*Listrochelus*) *barrerana* Aragón and Morón, 2003: 563
Distribution: México

Phyllophaga bonfils Woodruff and Sanderson, 2005: 52
Distribution: Haiti

Phyllophaga (*Phyllophaga*) *boruca* Morón, 2003a: 223
Distribution: Costa Rica

Phyllophaga (*Phyllophaga*) *canoana* Morón, 2003a: 289
Distribution: Guatemala

Phyllophaga carnegie Woodruff, 2005: 57
Distribution: Dominican Republic

Phyllophaga (*Phyllophaga*) *catemacoana* Morón, 2003a: 293
Distribution: México

Phyllophaga (*Phyllophaga*) *changuena* Morón, 2003a: 290
Distribution: Costa Rica, Nicaragua, Panama

Phyllophaga (*Phyllophaga*) *chiblacana* Morón, 2003a: 295
Distribution: Guatemala

Phyllophaga (*Phyllophaga*) *chimoxtila* Morón, 2003a: 257
Distribution: México

Phyllophaga (*Phyllophaga*) *cholana* Morón, 2003a: 287
Distribution: México

Phyllophaga (*Phyllophaga*) *chortiana* Morón, 2003a: 253
Distribution: Guatemala

Phyllophaga (*Phyllophaga*) *comaltepecana* Morón, 2003a: 277
Distribution: México

Phyllophaga davidsoni Woodruff, 2005: 60
Distribution: Dominican Republic

Phyllophaga (*Phyllophaga*) *dsaimana* Morón, 2003a: 281
Distribution: México

Phyllophaga eladio Woodruff, 2005: 65
Distribution: Dominican Republic

Phyllophaga (*Phyllophaga*) *humboldtiana* Morón, 2003a: 239
Distribution: México

Phyllophaga (*Phyllophaga*) *izabalana* Morón, 2003a: 225
Distribution: Guatemala

Phyllophaga jaragua Woodruff, 2005: 84
Distribution: Dominican Republic

Phyllophaga (*Phyllophaga*) *javepacuana* Morón, 2003a: 241
Distribution: Guatemala, México

Phyllophaga jimenezi Woodruff and Sanderson, 2005: 87
Distribution: Dominican Republic

Phyllophaga larimar Woodruff, 2005: 90
Distribution: Dominican Republic, Haiti

Phyllophaga (*Chlaenobia*) *lempira* Morón and Robbins, 2004: 332
Distribution: Honduras

Phyllophaga (*Phyllophaga*) *matacapana* Morón, 2003a: 266
Distribution: México

Phyllophaga (*Listrochelus*) *macgregori* Morón, 2004: 90
Distribution: México

Phyllophaga marcano Woodruff, 2005: 97
Distribution: Dominican Republic

Phyllophaga nunezi Woodruff, 2005: 110
Distribution: Dominican Republic

Phyllophaga (*Phyllophaga*) *ocozocuana* Morón, 2003a: 279
Distribution: México

Phyllophaga (*Phyllophaga*) *onoreana* Morón, 2003a: 229
Distribution: Ecuador

Phyllophaga ortizi Woodruff, 2005: 113
Distribution: Dominican Republic

Phyllophaga perdernales Woodruff, 2005: 117
Distribution: Dominican Republic

Phyllophaga (*Phyllophaga*) *pseudoatra* Morón, 2003a: 246
Distribution: México

Phyllophaga (*Phyllophaga*) *quiana* Morón, 2003a: 283
Distribution: México

Phyllophaga rawlinsi Woodruff, 2005: 126
Distribution: Dominican Republic

Phyllophaga rex Woodruff and Sanderson, 2005: 130
Distribution: Dominican Republic

Phyllophaga (*Listrochelus*) *riverana* Morón, 2004: 91
Distribution: México

Phyllophaga rustica Woodruff, 2005: 137
Distribution: Dominican Republic

Phyllophaga (*Chlaenobia*) *rzedowskiana* Aragón and Morón, 2003: 560
Distribution: México

Phyllophaga santachloe Woodruff, 2005: 141
Distribution: Dominican Republic

Phyllophaga (*Phyllophaga*) *schizorhinoides* Morón, 2003a: 221
Distribution: Costa Rica, Panama

Phyllophaga (*Phyllophaga*) *solisiana* Morón, 2003a: 259
Distribution: Costa Rica, Guatemala, Nicaragua

Phyllophaga toni Woodruff, 2005: 143
Distribution: Dominican Republic

Phyllophaga (*Phyllophaga*) *tuxtleca* Morón, 2003a: 237
Distribution: México

Phyllophaga (*Phyllophaga*) *yoloxana* Morón, 2003a: 285
Distribution: México

Phyllophaga (*Phyllophaga*) *zaragozana* Morón, 2003a: 227
Distribution: México

Phyllophaga (*Phyllophaga*) *zarcoana* Morón, 2003a: 275
Distribution: Guatemala

Genus *POLYPHYLLA* Harris

Polyphylla donaldsoni Skelley, 2005: 150
Distribution: USA

Polyphylla woodruffi Skelley, 2005: 148
Distribution: USA

Tribe MACRODACTYLINI
Genus *CERASPIS* Le Peletier and Audinet-Serville

Ceraspis jaliscoensis Delgado and Navarette-Heredia, 2004: 2
Distribution: Mexico

Genus *MACRODACTYLUS* Dejean

Macrodactylus hondurensis Arce-Pérez and Morón, 2005: 32
Distribution: Honduras

Macrodactylus tibialis Arce-Pérez and Morón, 2005: 27
Distribution: Honduras, Nicaragua

NEW SYNONYMY

The following generic and specific names were synonymized between 1 January 2003 and 30 June 2005 and they must be changed in the checklist.

Tribe SERICINI
Genus *HEMISERICA* Brenske

Rhynchosymmela Frey, 1974 is a junior synonym of *Hemiserica* Brenske, 1894 (Ahrens 2004: 32), an Old World genus

Rhyncosymmela pallida Frey, 1974 is a junior synonym of *Hemiserica nasuta* Brenske, 1894, and is indigenous to India (Ahrens 2004: 31)

Remark: Ahrens (2004) reported that this genus and species are indigenous to India and not found in the New World. Frey's holotype of *Rhyncosymmela pallida* was mislabeled and is not from Panama. Therefore these names should be removed from the New World checklist.

Tribe MELOLONTHINI
Genus *GRONOCARUS* Schaeffer

Gronocarus multispinosus Howden, 1961 is a junion synonym of *Gronocarus autumnalis* Schaeffer, 1927 (Skelley 2005: 139)

Genus *PHYLLOPHAGA* Harris

Subgenus *Eugastra* LeConte, 1856 is a junior synonym of *Phyllophaga* (*Phyllophaga*) Harris, 1827 (Riley and Wolfe 2003: 20)

Phyllophaga aegrota (Bates, 1888) is a junior synonym of *Phyllophaga ciliatipes* (Blanchard, 1850) and the record of this species in Brazil is erroneous (Morón 2003b: 4)

Phyllophaga gestis Saylor, 1943 is a junior synonym of *Phyllophaga collaris* (Moser, 1921) (Morón 2003b: 10)

Phyllophaga (*Phyllophaga*) *nigrofusca* (Moser, 1918) is a junior synonym of *Phyllophaga* (*Phyllophaga*) *pachypyga* (Burmeister, 1855) (Restrepo-Giraldo *et al*. 2003: 246)

Phyllophaga opacita Reinhard, 1939 is a junior synonym of *Phyllophaga* (*Phyllophaga*) *arcta* (Horn, 1887) (Riley and Wolfe 2003: 21)

Phyllophaga guatemalica (Moser, 1918) and *Phyllophaga longiclava* (Moser, 1918) are **here placed in synonymy** with *Phyllophaga ravida* (Blanchard, 1851)

Remark: In the the original New World Melolonthinae checklist, the names synonmized here were listed as subspecies of *P. ravida*. The problems with the nomenclature of the subspecies and synonyms of this species and the questionable ranges of the subspecies

prompted us to propose this synonymy. Blanchard (1851) described this species from "Mexique" and later Horn (1887) described *Lachnosterna heterodoxa* (now a synonym of *P. ravida*) from "southern Arizona, or possibly in Chihuahua." Moser (1918) later described *P. ravida guatemalica* (from "Guatemala city") and *P. ravida longiclava* (from "Mexico"); both as subspecies. Sanderson (1942) reported that a specimen of *P. ravida guatemalica* had been collected in Texas, but noted that the specimen had been determined by Lawrence Saylor, and not by Sanderson himself. Sanderson (1958), after studying the problem and examining specimens from Texas, Arizona, and Mexico, considered the taxon to be *P. ravida* (with no subspecific designation) and placed Horn's *Lachnosterna heterodoxa* in synonymy with the species. Current *Phyllophaga* experts such as Miguel Angel Morón (for example in Morón *et al*. 1997 and Morón 2003b) cite *P. ravida* as occurring from the United States to Guatemala without any reference to subspecies. However, since the two Moser subspecies were never officially synonymized, we are left with two subspecies from Mexico and one with the improbably disjunct distribution of Guatemala and the United States. Also, Horn's *Lachnosterna heterodoxa* was described from within the reported range of *P. ravida guatemalica* has priority over this name. We feel that the synonymy of Moser's two subspecific names have simply been overlooked and, as a result, have caused confusion over the range and identity of the species and subspecies. In order to better understand the variation and distribution of this species type specimens need to be examined, type localities need to be better defined, and characters need to be examined from specimens across the entire range of this species. Until this research is published, Moser's names should remain in synonymy.

Phyllophaga seri Morón, 2002 is a junior synonym of *Phyllophaga juvenilis* (Fall, 1932) (Morón 2003b: 20)

Tribe DIPLOXTAXINI
Genus *LIOGENYS* Guérin-Méneville

Peritryssus Reitter, 1918 is a junior synonym of *Liogenys* Guérin-Méneville, 1831 (Keith and Lacroix 2003: 48)

Remark: Keith and Lacroix (2003) reported that although *Peritryssus* Reitter was described as a genus of Old World Pachydemini, it is actually an adventive New World taxon from the genus *Liogenys*.

Tribe MACRODACTYLINI
Genus *DICHELONYX* Harris
syn. *Philochloenia* Dejean, 1833: 163. Type species *Melolontha elongata* Fabricius, 1792 **here designated**.

Remark: The generic name *Philochloenia* has had a sordid history of being misapplied, misspelled, and given the incorrect authorship. The generic name *Philochloenia* (original spelling) was validated by Dejean (1833: 163) when he placed the following available names in the genus: [*Melolontha*] *filitarsis* Germar (now in *Anoplosiagum*), [*Melolontha*] *elongata* Fabricius (now a synonym of *Dichelonyx elongatula*), and [*Melolontha*] *elongatula* Schoenherr (now in *Dichelonyx*). Since none of the three species names original placed in the genus have ever been designated as the type species, we designate *Melolontha elongata* Fabricius, 1792 as the type species of *Philochloenia* Dejean, 1833. This makes *Philochloenia* a junior synonym of *Dichelonyx*. The misspelling "*Philochlaenia*" seems to originate with Hope (1837: 41) but was perpetuated by Blanchard several times. Blanchard was subsequently credited with various spellings of this name but we found no evidence that he ever intentionally created a new generic name separate from the Dejean name (see Blanchard 1842, 1845, 1846, 1847, 1850, 1854). Blanchard used three different spellings and had a few different concepts of the genus, which is certainly the source of the confusion for this name. The Australian genus "*Phyllochlaenia*" (Melolonthinae: Automoliini) is based on Blanchard (1846: plate 8; where it was actually spelled "*Phyllochloenia*"!) but there is no evidence that Blanchard intended to erect a different name from Dejean here, and Blanchard (1850: 112) himself even contradicts this spelling. The two Australian species were recently transferred to "*Phyllochlaenia*" by Houston and Weir (1992) but since this name is a misspelling of *Philochloenia*, the generic name *Deuterocaulobius* Dalla Torre, 1912 should be brought out of synonymy and considered the valid name for this taxon (as it was previously, see Britton 1957).

Genus *MACRODACTYLUS* Dejean

Macrodactylus costulatus rufipennis Bates, 1887 was not recognized as a valid taxon by Arce-Pérez and Morón (2005: 25–26) and therefore they effectively placed into synonymy with *Macrodactylus costulatus* Bates, 1887

NEW HOMONYMY

The following names were discovered to be junior homonyms since the New World Melolonthinae checklist was published.

Tribe DIPLOTAXINI
Genus *LIOGENYS* Guérin-Méneville

Liogenys excisa Moser, 1919 is a secondary junior homonym of *Liogenys excisa* (Reitter, 1918) and was replaced with the name *Liogenys peritryssoidea* Keith, 2004: 195.

Tribe PACHYDEMINI
Genus *WARWICKIA nom. nov.*

Benedictia Sanderson, 1939 is a junior homonym of *Benedictia* Dybowski, 1875 (Mollusca) and is here replaced with *Warwickia* **new replacement name**. *Warwickia* is feminine in gender and the type species is *Benedictia pilosa* Sanderson, 1939. Abiding by the intentions of Sanderson (1939), the genus is again named after Mr. Warwick Benedict, former coleopterist at the University of Kansas and mentor of Milton Sanderson.

NEW COMBINATIONS

The following species were placed in new genera and subgenera since the New World Melolonthinae checklist was published.

Tribe DIPLOTAXINI
Genus *LIOGENYS* Guérin-Méneville

Liogenys excisa (Reitter) was transferred from the genus *Peritryssus* by Keith and Lacroix (2003: 48).

Tribe Melolonthini
Genus *PHYLLOPHAGA* Harris

Phyllophaga (*Phyllophaga*) *cribrosa* (LeConte, 1853) is here transferred from the subgenus *Eugastra* LeConte.

Phyllophaga (*Phyllophaga*) *epigaea* (Wickham, 1903) is here transferred from the subgenus *Eugastra* LeConte.

Tribe PACHYDEMINI
Genus *WARWICKIA nom. nov.*

Warwickia pilosa (Sanderson, 1939) **new combination** is here proposed for *Benedictia pilosa* Sanderson, 1939.

NEW STATUS

The following species were elevated from the level of subspecies to species in 2003.

Phyllophaga amplicornis Reinhard, 1939 was elevated to the species level (Riley and Wolfe 2003: 21). It was previously considered a subspecies of *Phyllophaga tristis* (Fabricius, 1781)

Phyllophaga apicata Reinhard, 1939 was elevated to the species level (Riley and Wolfe 2003: 9). It was previously considered a subspecies of *Phyllophaga tristis* (Fabricius, 1781)

Phyllophaga chiapensis (Chapin, 1935) was elevated to the species level (Morón 2003b: 5). It was previously considered a subspecies of *Phyllophaga aequata* (Bates, 1888)

Phyllophaga suttonana Reinhard, 1939 was elevated to the species level (Riley and Wolfe 2003: 23). It was previously considered a subspecies of *Phyllophaga tristis* (Fabricius, 1781)

NEW COUNTRY RECORDS

The following new country records were recorded in the literature from 1 January 2003 to 30 June 2005.

Tribe MELOLONTHINI
Genus *PHYLLOPHAGA* Harris

Phyllophaga aliada Sanderson, 1951
Distribution: Dominican Republic (Woodfruff and Sanderson 2005: 36)

Phyllophaga (*Phyllophaga*) *anolaminata* (Moser, 1921)
Distribution: Honduras, México (Alcázar-Ruiz *et al*. 2003: 64)

Phyllophaga (*Phyllophaga*) *blanda* Sanderson, 1958
Distribution: México (Morón 2003b)

Phyllophaga (*Chlaenobia*) *chiapensis* (Chapin, 1935)
Distribution: Costa Rica, El Salvador, Honduras (Morón 2003b: 5)

Phyllophaga (*Phytalus*) *guatemala* Saylor, 1940
Distribution: México (Morón 2003b: 6)

Phyllophaga (*Chlaenobia*) *halffteriana* Morón, 1992
Distribution: Costa Rica, Honduras (Morón 2003b: 5)

Phyllophaga (*Phyllophaga*) *hondura* Saylor, 1943
Distribution: USA

Remark: R. E. Woodruff (personal communication) reports that this species has been collected by the thousands in Ross-Castello Hammock Metropolitan Park near Homestead, Dade County, Florida.

Phyllophaga (*Listrochelus*) *juvenilis* (Fall, 1932)
Distribution: México (Morón 2003b: 20)

Remark: The Mexican population of this species was originally described as *P.* (*L.*) *seri* by Morón (2002), now a synonym of *P.* (*L.*) *juvenilis* (Fall).

Phyllophaga leptospica Sanderson, 1951
Distribution: Dominican Republic (Woodruff and Sanderson 2005: 95)

Phyllophaga (*Phyllophaga*) *nigrita* (Moser, 1918)
Distribution: Nicaragua (Morón 2003a: 273)

Phyllophaga (*Phyllophaga*) *pachypyga* (Burmeister, 1855)
Distribution: Colombia (Restrepo-Giraldo *et al*. 2003: 246)

Phyllophaga (*Cnemarachis*) *panicula* Sanderson, 1951
Distribution: Dominican Republic (Woodruff and Sanderson 2005: 17)

Phyllophaga (*Phyllophaga*) *parvisetis* (Bates, 1888)
Distribution: Guatemala, Honduras, Nicaragua (Morón 2003b: 13)

Phyllophaga permagna (Moser, 1918)
Distribution: Dominican Republic (Woodruff and Sanderson 2005: 123)

Phyllophaga (*Phytalus*) *punctuliceps* (Bates, 1888)
Distribution: México (Morón 2003b: 6)

Phyllophaga recorta Sanderson, 1951
Distribution: Dominican Republic (Woodruff and Sanderson 2005: 130)

Phyllophaga (*Phyllophaga*) *rorulenta rorulenta* (Burmeister, 1855)
Distribution: Panama (Morón 2003b: 13)

Phyllophaga (*Phyllophaga*) *rostrypyga* (Bates, 1889)
Distribution: México (Morón 2003b: 12)

Phyllophaga (*Phyllophaga*) *rugipennis* (Schuafuss, 1858)
Distribution: Colombia (Restrepo-Giraldo *et al*. 2003: 246)

Phyllophaga (*Phyllophaga*) *rugulosa* (Blanchard, 1851)
Distribution: not from Brazil (see Morón 2003a: 251)

Phyllophaga (*Chlaenobia*) *scabripyga* (Bates, 1888)
Distribution: El Salvador (Morón 2003b: 5)

Phyllophaga (*Phyllophaga*) *schizorhina* (Bates, 1888)
Distribution: Costa Rica (Morón 2003a: 219)

Phyllophaga (*Phyllophaga*) *submetallica* (Bates, 1888)
Distribution: not from México (Morón 2003a: 257)

Phyllophaga (*Phyllophaga*) *testaceipennis* (Blanchard, 1851)
Distribution: Guatemala (Morón 2003b: 13)

Phyllophaga (*Chlaenobia*) *tumulosa* (Bates, 1888)
Distribution: El Salvador, Nicaragua (Morón 2003b: 5)

Phyllophaga (*Chirodines*) *zunilensis* (Bates, 1888)
Distribution: Honduras (Morón 2003b: 5)

Tribe DIPLOTAXINI
Genus *DIPLOTAXIS* Kirby

Diplotaxis simplex Blanchard, 1851
Distribution: USA (Riley and Wolfe 2003: 25)

Genus *LIOGENYS* Guérin-Méneville
Liogenys excisa (Reitter, 1918)
Distribution: Neotropical (adventive in Sicile) (Keith and Lacroix 2003: 45)

Tribe MACRODACTYLINI
Genus *MACRODACTYLUS* Dejean

Macrodactylus costulatus Bates, 1887
Distribution: Honduras (Arce-Pérez and Morón 2005: 25)

Macrodactylus dimidiatus Guérin-Méneville, 1844
Distribution: Honduras (Arce-Pérez and Morón 2005: 28)

Macrodactylus montanus Arce-Pérez and Morón, 2000
Distribution: Honduras (Arce-Pérez and Morón 2005: 35)

Macrodactylus nitidicollis (Blanchard, 1850)
Distribution: Colombia (Restrepo-Giraldo et al. 2003: 247)

Macrodactylus ovaticollis Bates, 1887
Distribution: Colombia (Restrepo-Giraldo et al. 2003: 247)

Macrodactylus sericeicollis Bates, 1887
Distribution: Honduras, Nicaragua (Arce-Pérez and Morón 2005: 26)

NEW LITERATURE

Tribe MELOLONTHINI

Keys to species: Skelley (2005: 130) (southeastern United States).

Genus *PHYLLOPHAGA* Harris

Keys to species: Morón (2003a: 215) (subgenus *Phyllophaga*, "*schizorhina*" species group); Alcázar-Ruiz *et al*. (2003: 81) (Villa Las Rosas, Chiapas, México); Morón (2004: 78) (subgenus *Listrochelus*, "*cavata*" species group; Morón and Robbins (2004: 337) (*Phyllophaga (Chlaenobia*) *latipes* group from Morazn and Paraso Honduras); Woodruff and Sanderson (2005: 15) (Hispaniola).

Annotated lists: Alcázar-Ruiz *et al*. (2003) (Villa Las Rosas, Chiapas, México); Restrepo-Giraldo *et al*. (2003) (Colombia); Muslera Ramos and Fernandez Garcia (2003) (Cuba).

Tribe DIPLOTAXINI
Genus *DIPLOTAXIS* Kirby

Keys to species: Alcázar-Ruiz *et al*. (2003: 83) (Villa Las Rosas, Chiapas, México).

Annotated lists: Alcázar-Ruiz *et al*. (2003) (Villa Las Rosas, Chiapas, México).

Tribe MACRODACTYLINI
Genus *CERASPIS* Le Peletier and Audinet-Serville

Key to species: Delgado and Navarette-Heredia (2004: 4) (México).

Genus *MACRODACTYLUS* Dejean

Key to species: Arce-Pérez and Morón (2005: 24) (Honduras and Nicaragua).

OMISSIONS

The following omissions were made from the original New World Melolonthinae checklist. The omitted information is given in boldface.

Tribe SERICOIDINI
Genus *SERICOIDES* Guérin-Méneville

Sericoides multicolor Martínez, 1956
Distribution: Argentina, **Chile**

Tribe MELOLONTHINI
Genus *MODIALIS* Fairmaire and Germain

syn. *Acanthosternum* Philippi, 1861: 739

Modialis prasinella Fairmaire and Germain, 1860
syn. *Acanthosternum splendens* Philippi, 1861: 739

Remark: The synonymy of this genus and species was done by Philippi (1887) but has been overlooked ever since. The synonymy is here resurrected because it has never been disputed and is correct. *Acanthosternum splendens* was considered a valid genus and species in the tribe Macrodactylini in the previous version of the checklist.

Genus *PHYLLOPHAGA* Harris

Annotated lists: **Muslera Ramos and Fernandez Garcia (1998) (Cuba)**

Phyllophaga (*Phyllophaga*) *blanchardi* (Arrow, 1933)
Distribution: Mexico

Phyllophaga hubbelli Cartwright, 1946
Distribution: USA

Phyllophaga kenscoffi Wolcott, 1928
Distribution: **Dominican Republic**, Haiti

Phyllophaga (*Phyllophaga*) *schizorhina* (Bates, 1888)
Distribution: **Costa Rica**, Nicaragua, Panama

Phyllophaga (*Phyllophaga*) *temora* Saylor, 1943
Distribution: México, **USA**

Tribe DIPLOTAXINI
Genus *DIPLOTAXIS* Kirby

Keys to species: **Delgado (2001: 141) (México-*puberula* species group).**

***Diplotaxis monticola* Delgado, 2001: 139**
Distribution: México

Tribe MACRODACTYLINI
Genus *DICRANIA* Le Peletier and Audinet-Serville

Dicrania subvestita Guérin-Méneville, 1844a
Distribution: **Brazil**

Dicrania velutina Laporte, 1832
Distribution: **Brazil**

Genus *ISONYCHUS* Mannerheim

Isonychus pauloensis Frey, 1970a
Distribution: **Brazil**

Isonychus simplex Frey, 1976b
Distribution: **Brazil**

Genus *MACRODACTYLUS* Dejean

Macrodactylus suavis Bates, 1887
Distribution: Costa Rica, **Nicaragua**, Panama

ERRORS

The following errors were made in the original New World Melolonthinae checklist.

Tribe ONCERINI LeConte, 1861 (not LeConte and Horn, 1861 as reported)

Tribe PODOLASIINI
Genus *PODOLASIA* Harold

Podolasia longipenis Howden, 1997: 248 (misspelled *longipennis*)

Tribe SERICOIDINI
Genus *SERICOIDES* Guérin-Méneville

syn. *Macrosoma* Hope, 1837: 109. Type species *Melolontha glacialis* Fabricius, by original designation (the type designation by Evans [2003] was unnessesary)

Sericoides antarcticus (Brenske, 1900: 109) (not 1906 as reported)

Sericoides testacea (Fabricius, 1775: 35)
syn. *Listronyx melanocephala* Blanchard, 1846: plate 8 (incorrectly attributed to Hombron and Jacquinot, 1853)

Remark: Germain described 31 species of *Maypa* and *Listronyx*, now all in the genus *Sericoides*. His descriptions appear in *Revision des Coléoptères du Chili. Suite (1)*, published by Fairmaire and Germain in 1863, not 1862 as reported. This necessitates the following corrections in the checklist:

Keys: Fairmaire and Germain (1863: 724, 741)

Sericoides andina (Germain, 1863)

Sericoides chilena (Germain, 1863)

Sericoides comata (Germain, 1863)

Sericoides convexa (Germain, 1863)

Sericoides delicatula (Germain, 1863)

Sericoides dubia (Germain, 1863)

Sericoides frigida (Germain, 1863)

Sericoides germaini Dalla Torre, 1912b: 131 (for Germain, 1863)
syn. *Listronyx castanea* Germain, 1863 (not Guérin-Méneville, 1839)

Sericoides lineolata (Germain, 1863)

Sericoides livida (Germain, 1863)
syn. *Listronyx obscura* Philippi, 1864: 453 (not Germain, 1863)

Sericoides longipes (Germain, 1863)

Sericoides monticola (Germain, 1863)

Sericoides obesa (Germain, 1863)

Sericoides obscura (Germain, 1863)

Sericoides olivacea (Germain, 1863)

Sericoides opacipennis (Germain, 1863)

Sericoides pallida (Germain, 1863)

Sericoides palpalis (Germain, 1863)

Sericoides philippiana Dalla Torre, 1912b
syn. *Sericoides andina* Philippi, 1864: 451 (not Germain, 1863)

Sericoides piligera (Germain, 1863)

Sericoides pubescens (Germain, 1863)

Sericoides rufocastanea (Germain, 1863)

Sericoides rugosula (Germain, 1863)

Sericoides sinuaticollis (Germain, 1863)

Sericoides subcostata (Germain, 1863)

Sericoides sulcatopunctata (Germain, 1863)

Sericoides sylvatica (Germain, 1863)

Sericoides variegata (Germain, 1863) (for Solier, 1851: 109)

Sericoides vestita (Germain, 1863)

Remark: Martínez (1971: 115) mentioned the following two species of *Sericoides* without including any descriptions. These were listed in the checklist as *nomen nudum*. However, both species were subsequently described the following year (Martínez 1972).

Sericoides nossi Martínez, 1972: 50
Distribution: Argentina

Sericoides rechencqui Martínez, 1972: 45
Distribution: Argentina

Tribe LIPARETRINI
Genus *APLODEMA* Blanchard

Aplodema magellanica (Blanchard, 1846: plate 8) (incorrectly attributed to Hombron and Jacquinot, 1853)

Tribe MELOLONTHINI
Genus *AMPHIMALLON* Berthold

Amphimallon Berthold, 1827: 362. (incorrectly attributed to Le Peletier and Audinet Serville, 1828)

Genus *PHYLLOPHAGA* Harris

Phyllophaga (*Cnemarachis*) *abudantuni* Chalumeau and Gruner, 1976 (misspelled *abundantuni*)

Remark: The specific epithet *abudantuni* was not spelled consistently in Chalumeau and Gruner (1976). In the introduction and key on pages 84 and 85 it is spelled *abudantuni*. On page 89 of the description it is spelled *abundantuni*. On page 90 this species is clearly dedicated to Mr. Abud-Antun.

Phyllophaga aequalis (LeConte, 1853b)
syn. *Lachnosterna exorata* Horn, 1887b: 278 (misspelled *exorta*)

Phyllophaga (*Cnemarachis*) *cambeforti* Cartwright and Chalumeau, 1977
Distribution: Dominica (not Dominican Republic; see also Woodruff and Sanderson 2005: 146)

Phyllophaga clemens (Horn, 1887)
syn. *Lachnosterna dispar* LeConte (this name is unavailable and should be removed from the checklist)

Phyllophaga (*Cnemarachis*) *dominicensis* Cartwright and Chalumeau, 1977
Distribution: Dominica (not Dominican Republic; see Woodruff and Sanderson 2005: 146)

Phyllophaga lanceolata (Say, 1824: 242)
syn. *Phyllophaga grisiana* Bloeker, 1936 (misspelled *griseana*)

Phyllophaga (*Phyllophaga*) *maculicollis* (LeConte, 1863b) (misspelled *masculicollis*)

Remark: This species appeared twice in the previous catalogue, once spelled correctly as *Phyllophaga maculicollis* and a second time spelled incorrectly as *Phyllophaga* "*masculicollis*." The second entry should be deleted and the junior synonym *Lachnosterna nitidula* LeConte, 1863b should be moved to the first entry.

Phyllophaga praetermissa (Horn, 1887b)
syn. *Lachnosterna diffinis* Horn (this name is unavailable and should be removed from the checklist)

Phyllophaga schaefferi Saylor, 1937d
syn. *Phyllophaga duvala* Robinson, 1938 (emendation from *duvalus* to agree in gender with the generic name)

Phyllophaga scuticeps (Bates, 1888)
ssp. *Listrochelus scuticeps major* Bates, 1888 (this name is unavailable and should be removed from the checklist)

Phyllophaga tristis (Fabricius, 1781)
syn. *Lachnosterna crinita* LeConte, 1856 (this name is unavailable and should be removed from the checklist)

Phyllophaga vandinei (Smyth, 1917)
Distribution: Puerto Rico (not Santo Domingo; see Woodruff and Sanderson 2005: 146)

Tribe DIPLOTAXINI
Genus *DIPLOTAXIS* Kirby

Diplotaxis punctatorugosa Blanchard, 1851
syn. *Diplotaxis frondicola* Blanchard, 1851 (this name is unavailable and should be removed from the checklist)

Genus *PACUVIA* Curtis

Pacuvia castanea Curtis, 1845
syn. *Liogenys gayana* Solier, 1851: 100 (incorrectly attributed to Blanchard, 1850)

Tribe PACHYDEMINI
Genus *PTYOPHIS* Redtenbacher

Type species *Ptyophis macrophylla* Redtenbacher, by monotypy (not *Tetraphyllus paulseni* Philippi as reported). *Ptyophis* is not a replacement name for *Tetraphyllus* Philippi as indicated in the previous checklist.

Tribe MACRODACTYLINI
Genus *CHARIODEMA* Blanchard

Chariodema virescens (Blanchard, 1842: plate 11) (not 1846 as reported)

Genus *DICHELONYX* Harris
syn. *Anaeretes* Dejean, 1836 (not 1833 as reported)

Genus *ISONYCHUS* Mannerheim

Isonychus aenescens Moser, 1919b
Distribution: Bolivia (not Argentina as previously reported)

Genus *MACRODACTYLUS* Dejean

Macrodactylus mexicanus Burmeister, 1855
syn. *Macrodactylus angustatus* Laporte, 1840 (this name is unavailable and should be removed from the checklist).

Macrodactylus murinus Bates, 1887

ssp. *Macrodactylus murinus subviridis* Bates, 1887 (this name is unavailable and should be removed from the list).

Macrodactylus sericeicollis Bates, 1887

Distribution: Guatemala (not México as previously reported)

Taxa removed from the New World Melolonthinae

Tribe Alvarengiini: *Alvarengius silphodes* Frey, 1975: 84. This tribe, genus and species are here transferred to the subfamily Rutelinae.

Remark: Frey (1975) included this tribe and genus in the Melolonthinae. Although Evans examined a specimen in the Canadian Museum of Nature and recognized it as a rutline (and therefore omitting it from the original checklist), it has not officially been removed it from Melolonthinae until now.

Tribe Chasmatopterini: This tribe does not occur in the New World (see Baraud and Branco 1991; Branco 2005).

Tribe Sericini: the genus *Rhyncosymmela* Frey, 1974 and species *Rhyncosymmela pallida* Frey, 1974 were removed from the New World Melolonthinae (see Ahrens 2004) and synonymized with Old World taxa.

New World melolonthine genera and species placed in *incertae sedis*

Genus *CHAUNOCOLUS* Saylor, 1937 (see Branco 2005: 35)

Chaunocolus cornutus Saylor, 1937 (see Branco 2005: 35)

Genus *CHNAUNANTHUS* Burmeister, 1855 (see Branco 2005: 35)

Chnaunanthus chapini Saylor, 1937 (see Branco 2005: 35)

Chnaunanthus discolor Burmeister, 1844 (see Branco 2005: 35)

Chnaunanthus flavipennis (Horn, 1867) (see Branco 2005: 35)

Acknowledgements

We would like to thank Matt Paulsen (University of Nebraska, Lincoln, Nebraska, USA) for bringing to our attention the homonymy of *Benedictia*. Federico Ocampo (University of Nebraska, Lincoln, Nebrasksa, USA) and Jose Mondaca (Santiago, Chile) provided useful insights into the South American melolonthine fauna. Paul Robbins (Cornell University, Ithaca, New York, USA) supplied distributional data missing in the original checklist for the genus *Phyllophaga* and also provided pertinent literature. Miguel Angel Morón (Instituto de Ecología, Xalapa, Veracruz, México) also supplied us with reprints essential to this supplement. Ev Britton (CSIRO, Canberra, Australia), now deceased, generously supplied literature on Australian melolonthines, along with notes on their faunal affinities with South American taxa to Evans while he was a doctoral candidate at the University of Pretoria, South Africa. We also thank Tristao Branco (Porto, Portugal) for bringing to our attention the significant differences between the Palearctic *Chasmatopterus* and the New World genera assigned to the Chasmatopterini. Aleš Bezdek (Institute of Entomology, České Budějovice, Czech Republic) and Brett Ratcliffe (University of Nebraska, Lincoln, Nebraska, USA) are thanked for their careful reviews of this paper. This publication was supported, in part, by an NSF/BS&I grant (DEB-0342189) to A. B. T. Smith and F. C. Ocampo.

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